

1 What is claimed is:

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3 1. An asphalt roofing composition in the form of a roll
4 or a shingle-like structure in which a hot mixture
5 of an asphaltic base and filler is applied to a
6 substrate form, wherein the composition also
7 comprises an amount of an alkaline earth metal
8 hydroxide in order to impart strength and durability
9 to the composition.

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11 2. The composition of Claim 1, wherein the alkaline
12 earth metal hydroxide is selected from a group
13 consisting of $\text{Ca}(\text{OH})_2$, $\text{Mg}(\text{OH})_2$, and $\text{Ca}(\text{OH})_2 \cdot \text{Mg}(\text{OH})_2$.

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15 3. The composition of Claim 1, wherein the alkaline
16 earth metal hydroxide is between about 1-10% by
17 weight of asphalt.

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19 4. The composition of Claim 1, wherein the alkaline
20 earth metal hydroxide is between about 3-5% by
21 weight of asphalt.

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23 5. The composition of Claim 1, wherein the filler is
24 fly ash.

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26 6. The composition of Claim 1, wherein the filler is
27 CaCO_3 .

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29 7. The composition of Claim 1, wherein the filler is
30 MgCO_3 or $\text{MgCO}_2 \cdot \text{CaCO}_3$.

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1 8. The composition of Claim 1, wherein the alkaline
2 earth metal hydroxide is first added directly to the
3 asphaltic base of the composition.

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5 9. The composition of Claim 1, wherein the alkaline
6 earth metal hydroxide is first added directly to the
7 filler of the composition.

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9 10. The composition of Claim 1, wherein the alkaline
10 earth metal is added first to the filler then to the
11 asphaltic base of the composition.

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13 11. The composition of Claim 1, wherein the composition
14 is between about 30% to 60% asphalt by weight.

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16 12. An asphalt roofing composition in the form of a roll
17 or a shingle-like structure in which a hot mixture
18 of an asphaltic base, filler, and water is applied
19 to a substrate form, wherein the composition also
20 comprises an amount of an alkaline earth metal oxide
21 in order to impart strength and durability to the
22 composition, the metal oxide reacting with water in
23 the filler to produce the corresponding metal
24 hydroxide.

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26 13. The composition of Claim 12, wherein the alkaline
27 earth metal oxide is selected from a group
28 consisting of CaO, MgO, and CaO·MgO.

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30 14. The composition of Claim 12, wherein the alkaline
31 earth metal oxide is between about 1-10% by weight
32 of asphalt.

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2 15. The composition of Claim 12, wherein the alkaline
3 earth metal oxide is between about 3-5% by weight of
4 asphalt.
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6 16. The composition of Claim 12, wherein the filler is
7 fly ash.
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9 17. The composition of Claim 12, wherein the filler is
10 CaCO_3 .
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12 18. The composition of Claim 12, wherein the filler is
13 MgCO_3 or $\text{MgCO}_2 \cdot \text{CaCO}_3$.
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15 19. The composition of Claim 12, wherein the alkaline
16 earth metal oxide is first added directly to the
17 asphaltic base of the composition.
18
19 20. The composition of Claim 12, wherein the alkaline
20 earth metal oxide is added first to the filler with
21 water, the oxide and water thus reacting to form the
22 corresponding hydroxide, the hydroxide and filler
23 then being added to the asphaltic base of the
24 composition.
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26 21. The composition of Claim 12, wherein the composition
27 is between about 30% to 60% asphalt by weight.
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29 22. A method of forming an asphalt roofing composition
30 in the form of a roll or a shingle-like structure,
31 the method comprising:
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1 heating an amount of asphalt;
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3 providing a desired amount of an alkaline earth
4 metal hydroxide;
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6 providing a filler;
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8 combining the asphalt, metal hydroxide, and filler
9 to form the composition; and
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11 placing the composition onto a substrate form and
12 allowing the second hot mixture to cool around the
13 substrate form.
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15 23. The method of Claim 22, wherein the hot asphalt and
16 the metal hydroxide are first mixed to form a
17 mixture, and the filler is then added to form the
18 composition.
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20 24. The method of Claim 22, wherein the metal hydroxide
21 and filler are first mixed to form a mixture, and
22 the hot asphalt is then added to form the
23 composition.
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25 25. The method of Claim 22, wherein the alkaline earth
26 metal hydroxide is selected from a group consisting
27 of $\text{Ca}(\text{OH})_2$, $\text{Mg}(\text{OH})_2$, and $\text{Ca}(\text{OH})_2 \cdot \text{Mg}(\text{OH})_2$.
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29 26. The method of Claim 22, wherein the alkaline earth
30 metal hydroxide is between about 1-10% by weight of
31 asphalt.
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- 1 27. The method of Claim 22, wherein the alkaline earth
2 metal hydroxide is between about 3-5% by weight of
3 asphalt.
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- 5 28. The method of Claim 22, wherein the composition is
6 between about 30% to 60% asphalt by weight.
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- 8 29. The method of Claim 22, wherein the substrate form
9 is a fiberglass mat.
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- 11 30. A method of forming an asphalt roofing composition
12 in the form of a roll or a shingle-like structure,
13 the method comprising:
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15 heating an amount of asphalt;
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17 providing a desired amount of an alkaline earth
18 metal oxide;
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20 providing a filler and water;
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22 combining the asphalt, metal oxide, water and filler
23 to form the composition; and
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25 placing the composition onto a substrate form and
26 allowing the second hot mixture to cool around the
27 substrate form.
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- 29 31. The method of Claim 30, wherein the metal hydroxide
30 and filler are first mixed with water to form a
31 mixture, and the hot asphalt then being added to
32 form the composition.

1 32. The method of Claim 30, wherein the alkaline earth
2 metal oxide is selected from a group consisting of
3 CaO, MgO, and CaO·MgO.
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5 33. The method of Claim 30, wherein the alkaline earth
6 metal oxide is between about 1-10% by weight of
7 asphalt.
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9 34. The method of Claim 30, wherein the alkaline earth
10 metal oxide is between about 3-5% by weight of
11 asphalt.
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13 35. The method of Claim 30, wherein the composition is
14 between about 30% to 60% asphalt by weight.
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16 36. The method of Claim 30, wherein the substrate form
17 is a fiberglass mat.